

Appendix H: Spatial Distribution of Benefiting Reaches, MP&M Facilities, and Benefiting Populations

INTRODUCTION

This appendix presents six maps showing a distribution, by geographic location and population, of the sample discharge reaches estimated to benefit from reduced MP&M discharges. EPA used a U.S. Counties data layer developed by the Environmental System Research Institute (ESRI) as a base map. The Agency then used ESRI's ArcView 3.2 to display the benefiting reaches and the sample MP&M facilities data layers.

The Benefiting Reaches data layer depicts all reaches in which at least one MP&M pollutant exceeding the AWQC limits for human health or aquatic species fell below the AWQC limit as a result of the proposed rule. EPA used the Office of Water's BASINS software package to identify locations of the sample benefiting reaches.

The Agency geocoded the sample MP&M facilities to display their locations by county and population, in two ways:

- ▶ by using latitude and longitude coordinates gathered during Phase I; or
- ▶ in the absence of those coordinates, by matching the reported ZIP code of the facility to the ZIP code centroid data layer provided by ESRI.

ESRI provided information on the 1999 county population estimates. EPA then estimated population categories for each map using a least-squares process. The least-squares process minimizes the differences within groups while maximizing the differences between them. The Agency applied this process to the population ranges of only those counties found within the regions depicted on the map.

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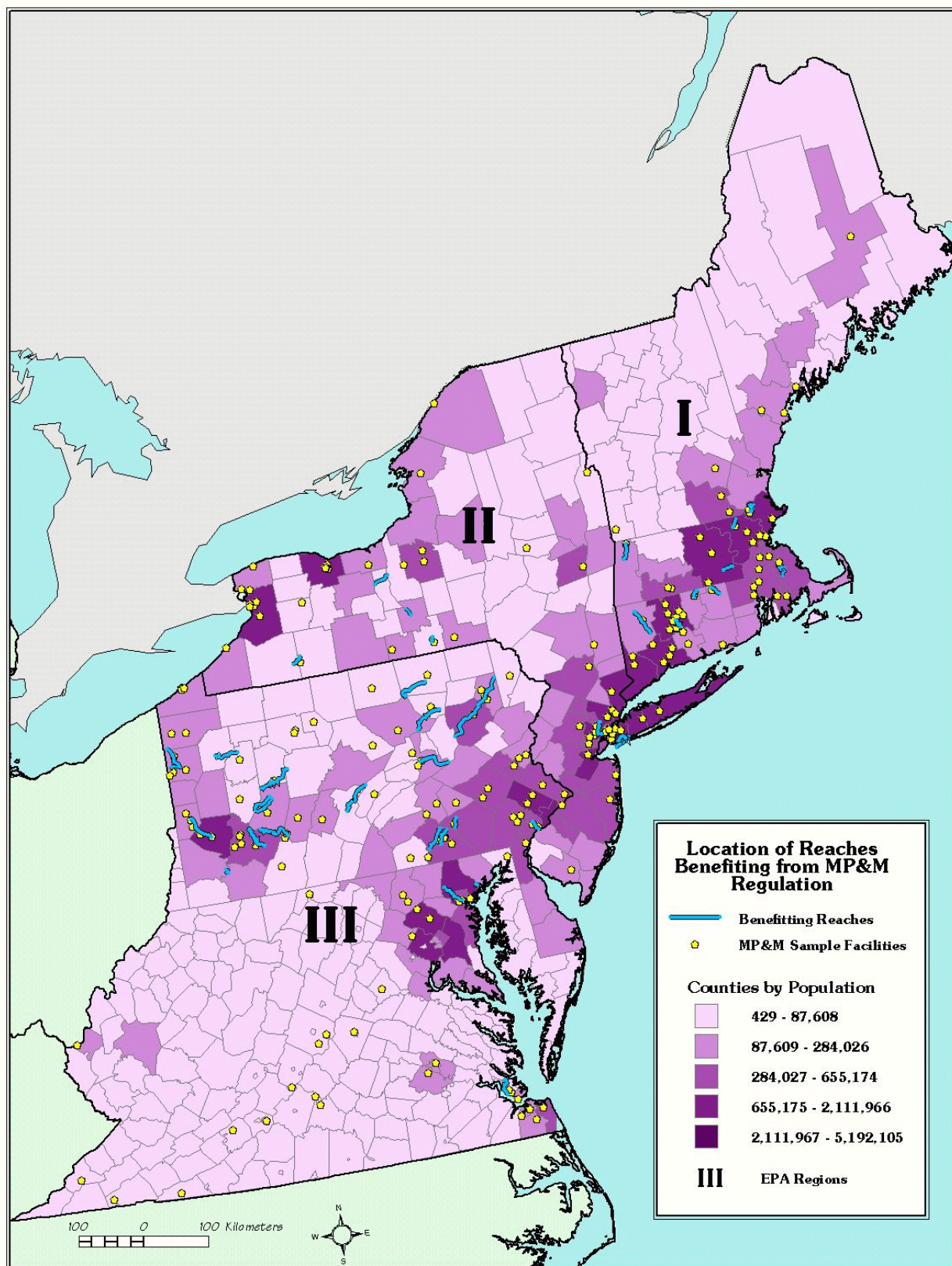
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This appendix also compares the national distribution of all MP&M facilities by state and the national distribution of recreational participants by state (see Table H.1 and Figure H.7). EPA based the distribution of MP&M facilities by

state on Census data on total numbers of facilities in the SICs that make up the MP&M industries, not just water dischargers. This comparison assumes that the state distribution of water-discharging MP&M facilities is the same as the overall distribution of MP&M facilities. EPA based the distribution of recreational participants by state

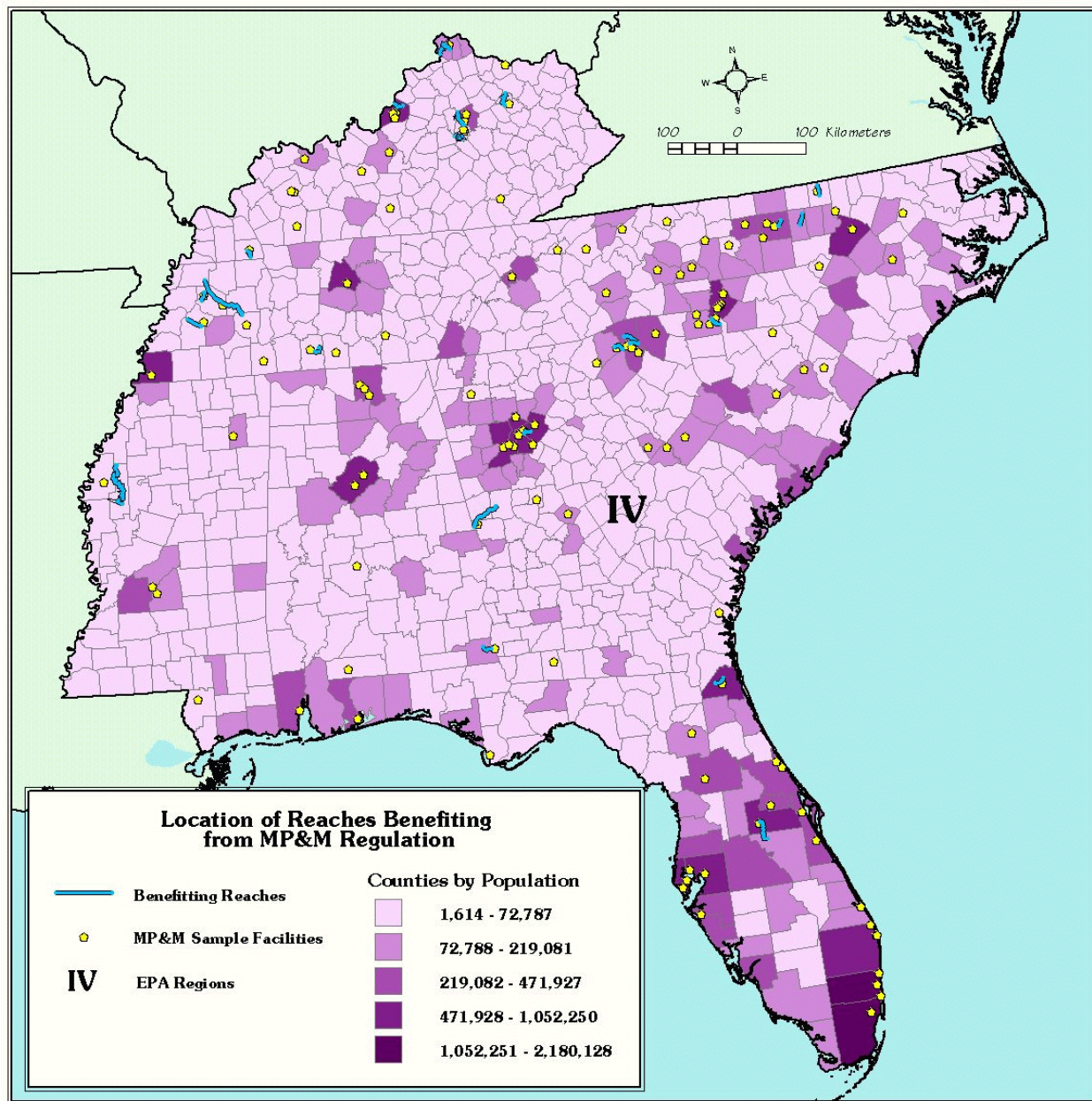
and by type of recreation activity on information provided by the National Demand Study data. This comparison suggests that the reaches that benefit from the proposed rule are also those where a very large percentage of all recreational participants reside and recreate.

Figure H.1: Location of Benefiting Reaches in Relation to Sample MP&M Facilities by County and Population
Reaches Benefiting from MP&M Regulation (EPA Regions I, II, and III)



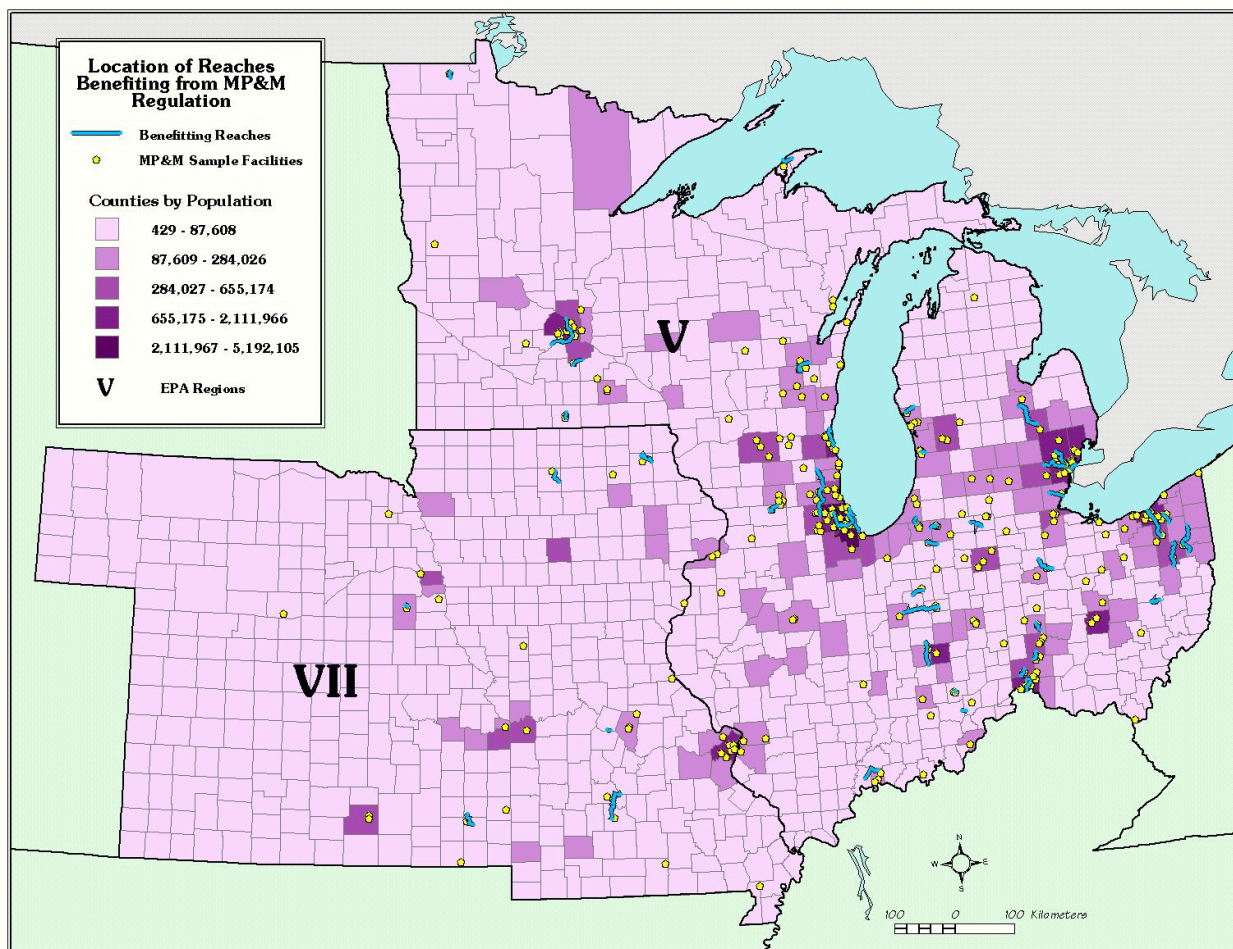
Source: U.S. EPA analysis.

Figure H.2: Location of Benefiting Reaches in Relation to Sample MP&M Facilities by County and Population
Reaches Benefiting from MP&M Regulation (EPA Region IV)



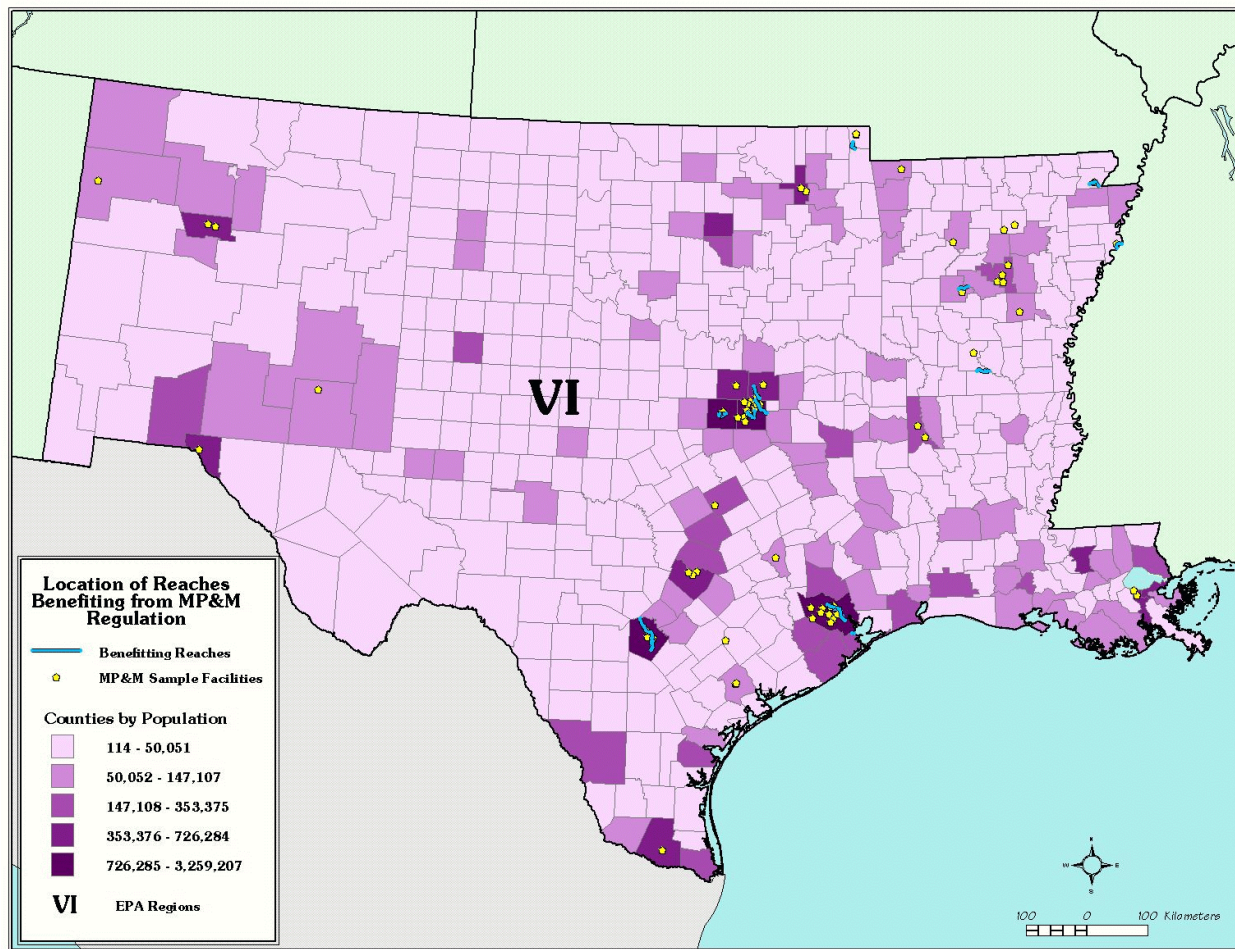
Source: U.S. EPA analysis.

Figure H.3: Location of Benefiting Reaches in Relation to Sample MP&M Facilities by County and Population
Reaches Benefiting from MP&M Regulation (EPA Region V and VII)



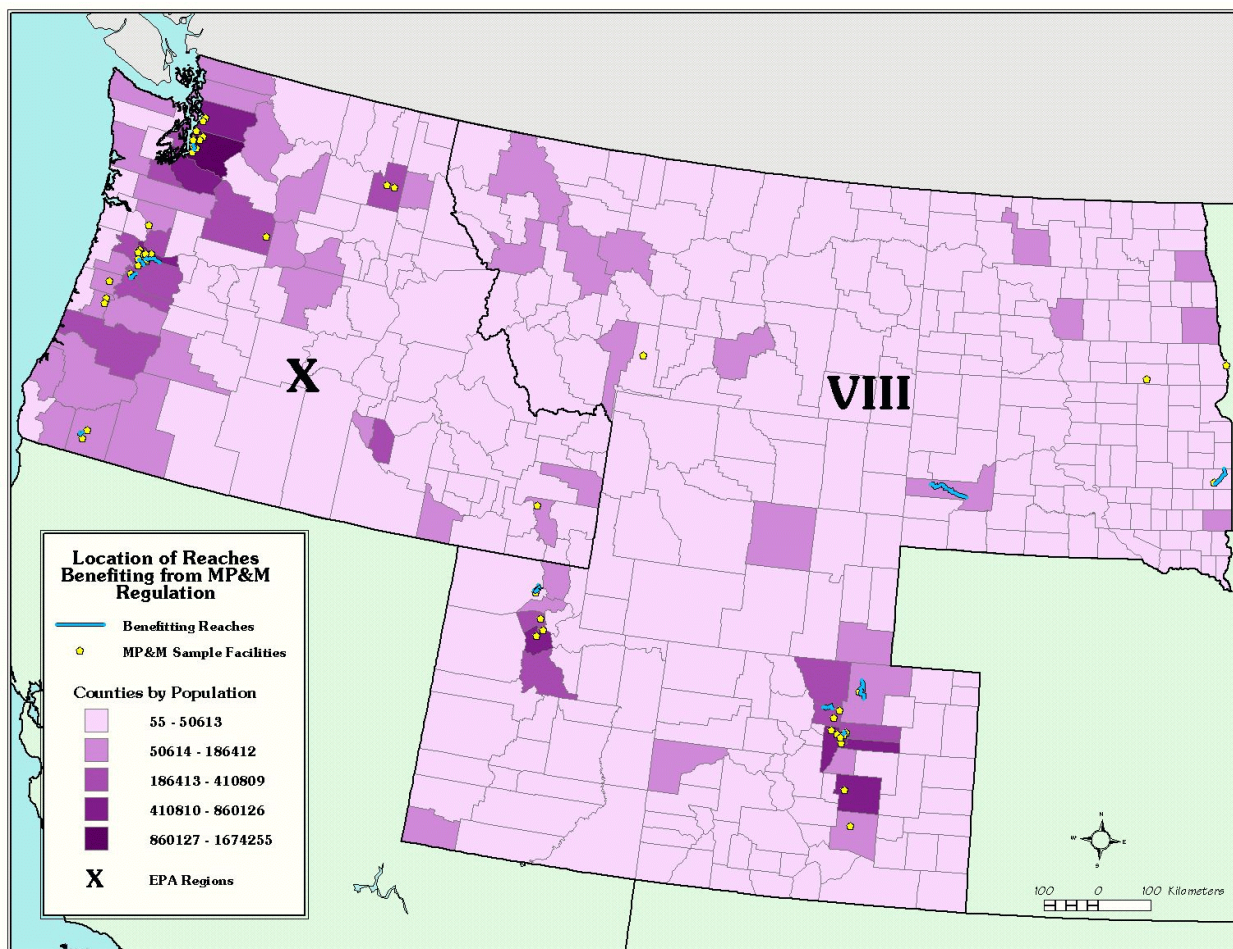
Source: U.S. EPA analysis.

Figure H.4: Location of Benefiting Reaches in Relation to Sample MP&M Facilities by County and Population
Reaches Benefiting from MP&M Regulation (EPA Region VI)



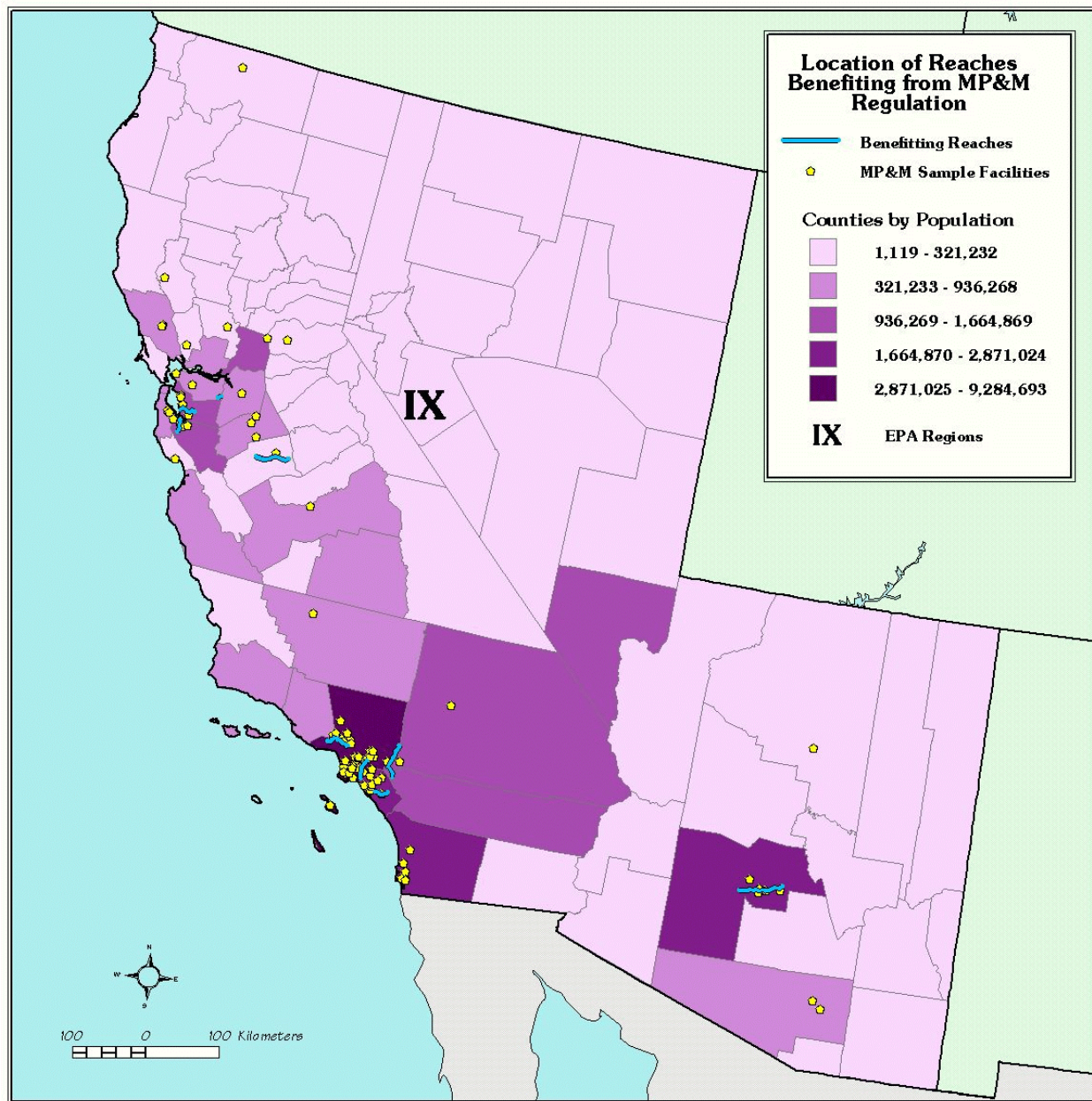
Source: U.S. EPA analysis.

Figure H.5: Location of Benefiting Reaches in Relation to Sample MP&M Facilities by County and Population
Reaches Benefiting from MP&M Regulation (EPA Regions VIII and X)



Source: U.S. EPA analysis.

Figure H.6: Location of Benefiting Reaches in Relation to Sample MP&M Facilities by County and Population
Reaches Benefiting from MP&M Regulation (EPA Region IX)



Source: U.S. EPA analysis.

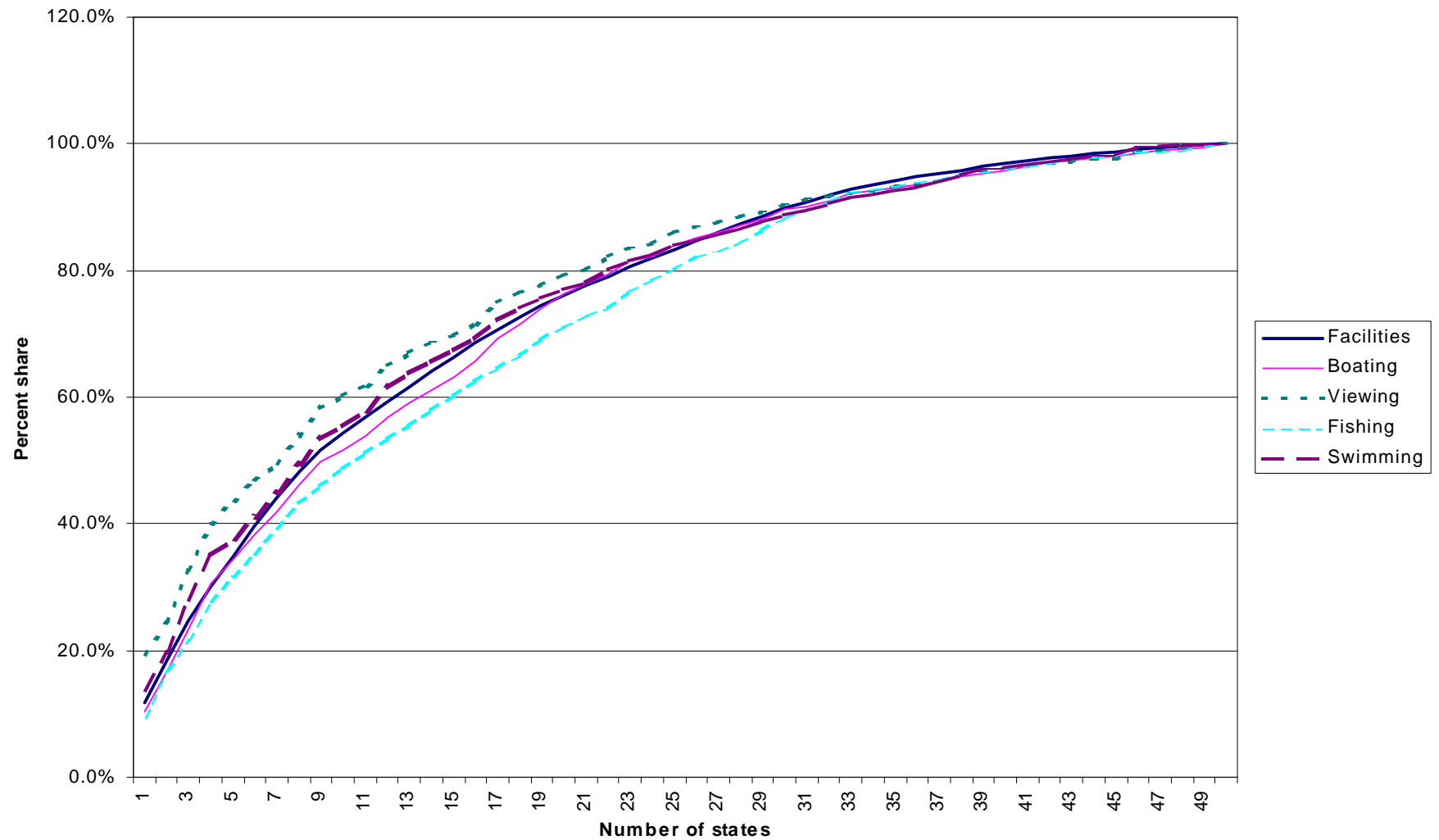
Table H.1: Distribution of MP&M Facilities and Participants of Water Based Recreation by State

State	Percent of State Population Participating by Activity				Average # of Per Person Trips per Season by Activity				Total State Pop. (1990) (Millions)	Potential (Extrapolated) # Participants Based on State Population				Nat'l # of MP&M Facilities	State % of National Facilities	Cum. ST % of Facilities	Cumulative Percent Distribution of Participants by State			
	Boat	View	Fish	Swim	Boat	View	Fish	Swim		Boat	View	Fish	Swim				Boat	View	Fish	Swim
CA	11.7%	36.9%	13.6%	20.1%	5.4	14	7.1	11.7	29.8	3,490,513	10,992,849	4,057,154	5,983,736	68,359	11.9%	11.9%	10.3%	19.5%	9.4%	13.8%
TX	12.8%	16.4%	18.9%	14.5%	7.2	5	10.6	6.5	17.0	2,171,791	2,792,303	3,205,978	2,456,192	38,176	6.6%	18.5%	16.7%	24.5%	16.8%	19.4%
NY	12.4%	25.6%	11.2%	20.5%	7.9	5.7	9.2	8.7	18.0	2,231,374	4,602,209	2,022,183	3,695,714	36,329	6.3%	24.8%	23.3%	32.6%	21.5%	27.9%
FL	18.7%	32.6%	20.5%	24.2%	10.1	17.9	17.1	15.4	12.9	2,423,418	4,221,438	2,657,943	3,126,991	30,198	5.2%	30.0%	30.5%	40.1%	27.7%	35.1%
IL	11.8%	17.2%	14.6%	9.4%	9.6	9	13.7	5.7	11.4	1,349,105	1,962,335	1,667,985	1,079,284	28,343	4.9%	34.9%	34.5%	43.6%	31.5%	37.6%
OH	11.5%	15.8%	14.2%	14.0%	8	8.2	13.1	8.8	10.8	1,251,590	1,718,851	1,535,284	1,518,596	26,460	4.6%	39.5%	38.2%	46.6%	35.1%	41.1%
PA	10.5%	14.4%	15.2%	13.7%	9.4	7.4	10.9	8	11.9	1,249,014	1,713,391	1,809,469	1,633,326	26,237	4.6%	44.1%	41.9%	49.7%	39.3%	44.8%
MI	16.0%	24.8%	18.4%	20.8%	8.6	9.4	12	8.5	9.3	1,484,665	2,307,687	1,710,593	1,936,520	23,662	4.1%	48.2%	46.3%	53.8%	43.2%	49.3%
NJ	15.9%	32.3%	15.9%	23.9%	10.9	6.4	6.3	7.3	7.7	1,225,246	2,495,046	1,225,246	1,849,008	19,805	3.4%	51.6%	49.9%	58.2%	46.1%	53.5%
NC	8.8%	17.9%	16.5%	13.5%	7.7	5.2	13.6	7.4	6.6	586,317	1,188,920	1,091,201	895,762	15,158	2.6%	54.3%	51.6%	60.3%	48.6%	55.6%
IN	14.3%	15.0%	20.3%	16.3%	7.7	9	11.8	5.5	5.5	794,663	831,624	1,127,312	905,546	14,656	2.5%	56.8%	54.0%	61.8%	51.2%	57.7%
MA	15.7%	30.9%	15.7%	28.9%	8.7	11.6	14.3	9.5	6.0	942,332	1,860,501	942,332	1,739,689	13,915	2.4%	59.2%	56.8%	65.1%	53.4%	61.7%
WI	15.7%	22.1%	18.1%	19.7%	10	6.1	11.5	6.2	4.9	768,940	1,079,788	883,463	965,266	13,845	2.4%	61.6%	59.0%	67.0%	55.4%	63.9%
GA	11.5%	13.9%	16.6%	11.5%	11.4	4.1	10.3	7.4	6.5	746,819	903,129	1,076,808	746,819	13,747	2.4%	64.0%	61.2%	68.6%	57.9%	65.6%
MO	13.0%	12.6%	18.8%	15.2%	5.2	4	5	8	5.1	665,035	646,562	960,606	775,874	13,395	2.3%	66.3%	63.2%	69.8%	60.1%	67.4%
VA	13.4%	17.0%	16.2%	13.4%	9	4.2	8.4	6.1	6.2	827,102	1,049,783	1,002,066	827,102	12,829	2.2%	68.6%	65.7%	71.6%	62.5%	69.3%
WA	25.0%	39.2%	18.8%	25.9%	5.8	11.7	18.2	5.8	4.9	1,216,673	1,907,623	916,260	1,261,735	11,991	2.1%	70.6%	69.3%	75.0%	64.6%	72.2%
MN	17.6%	19.6%	19.6%	17.6%	5.4	16.5	11.5	6.8	4.4	767,875	857,162	857,162	767,875	11,272	2.0%	72.6%	71.5%	76.5%	66.6%	73.9%
TN	17.9%	13.5%	22.6%	14.5%	7.5	3.7	15.1	6.7	4.9	873,280	659,079	1,103,957	708,510	10,808	1.9%	74.5%	74.1%	77.7%	69.1%	75.6%
MD	14.8%	18.7%	17.1%	12.1%	8.8	12.1	13.2	8.4	4.8	706,988	893,037	818,617	576,753	8,993	1.6%	76.0%	76.2%	79.3%	71.0%	76.9%
AL	14.7%	11.9%	20.6%	13.8%	7.5	9.2	18.6	10.6	4.0	593,114	481,905	834,066	556,044	8,825	1.5%	77.6%	77.9%	80.1%	72.9%	78.2%
CT	16.4%	37.1%	14.5%	27.0%	7.7	6.8	7.7	12.3	3.3	537,516	1,219,747	475,495	888,969	8,593	1.5%	79.1%	79.5%	82.3%	74.0%	80.2%
LA	16.4%	15.3%	27.0%	13.8%	4	3.4	13.4	4.4	4.2	692,165	647,509	1,138,723	580,525	8,500	1.5%	80.5%	81.6%	83.4%	76.7%	81.5%
CO	6.6%	13.2%	25.9%	11.3%	17.2	14.8	13.1	5.2	3.3	217,554	435,109	854,678	372,950	8,231	1.4%	82.0%	82.2%	84.2%	78.7%	82.4%
OR	20.3%	37.8%	24.9%	23.0%	8.8	7.2	13.2	7.4	2.8	576,323	1,074,057	707,306	654,913	7,978	1.4%	83.3%	83.9%	86.1%	80.3%	83.9%
KY	11.9%	12.3%	22.4%	10.0%	6.5	3	9.4	17.5	3.7	437,524	454,352	824,564	370,212	7,822	1.4%	84.7%	85.2%	86.9%	82.2%	84.8%
AZ	7.3%	11.2%	11.8%	10.7%	7.2	8	8.3	5.7	3.7	267,685	411,823	432,415	391,232	7,799	1.4%	86.1%	86.0%	87.7%	83.2%	85.7%

Table H.1: Distribution of MP&M Facilities and Participants of Water Based Recreation by State

State	Percent of State Population Participating by Activity				Average # of Per Person Trips per Season by Activity				Total State Pop. (1990) (Millions)	Potential (Extrapolated) # Participants Based on State Population				Nat'l # of MP&M Facilities	State % of National Facilities	Cum. ST % of Facilities	Cumulative Percent Distribution of Participants by State			
	Boat	View	Fish	Swim	Boat	View	Fish	Swim		Boat	View	Fish	Swim				Boat	View	Fish	Swim
IA	13.5%	16.4%	18.7%	13.5%	5	4.4	13.8	2.7	2.8	373,482	454,673	519,627	373,482	7,661	1.3%	87.4%	87.1%	88.5%	84.4%	86.5%
OK	11.2%	12.6%	25.2%	14.0%	4.9	3.4	14.6	4.2	3.1	351,954	395,948	791,896	439,942	6,972	1.2%	88.6%	88.2%	89.2%	86.2%	87.5%
SC	13.8%	19.9%	26.0%	15.5%	9.8	8.5	16.2	7.5	3.5	481,589	693,488	905,387	539,380	6,907	1.2%	89.8%	89.6%	90.4%	88.3%	88.8%
KS	6.7%	17.0%	18.5%	13.3%	17.6	9	12.9	6.2	2.5	165,172	422,105	458,810	330,343	6,370	1.1%	90.9%	90.1%	91.1%	89.4%	89.5%
AR	14.1%	12.5%	28.1%	18.0%	4.6	10.2	13.3	7.3	2.4	330,571	293,841	661,141	422,396	5,825	1.0%	91.9%	91.1%	91.7%	90.9%	90.5%
MS	13.6%	12.1%	23.6%	15.7%	6.3	24.2	17.4	12.9	2.6	349,222	312,462	606,544	404,363	5,165	0.9%	92.8%	92.1%	92.2%	92.3%	91.4%
NE	10.7%	15.5%	10.7%	15.5%	3.9	2.1	13.9	3.9	1.6	169,113	244,274	169,113	244,274	4,424	0.8%	93.6%	92.6%	92.7%	92.7%	92.0%
UT	8.1%	17.1%	13.5%	12.6%	6.6	3.5	3.6	6.8	1.7	139,691	294,902	232,818	217,296	3,633	0.6%	94.2%	93.0%	93.2%	93.3%	92.5%
WV	9.5%	10.3%	18.3%	15.9%	6.6	4.6	17.2	6.7	1.8	170,807	185,041	327,381	284,679	3,442	0.6%	94.8%	93.5%	93.5%	94.0%	93.1%
RI	15.8%	40.4%	19.3%	36.8%	6.9	4.6	8.3	7	1.0	158,442	404,907	193,651	369,697	3,106	0.5%	95.3%	94.0%	94.2%	94.5%	94.0%
ME	22.2%	44.4%	27.8%	37.5%	7.6	5.7	10.5	10.3	1.2	272,873	545,746	341,091	460,473	2,980	0.5%	95.9%	94.8%	95.2%	95.3%	95.1%
NH	18.8%	31.2%	14.1%	34.4%	3.3	14.9	13.2	15.7	1.1	207,985	346,641	155,989	381,305	2,960	0.5%	96.4%	95.4%	95.8%	95.6%	95.9%
NM	6.7%	8.6%	12.4%	9.5%	3.7	5.6	9.8	3.8	1.5	101,005	129,863	187,580	144,292	2,927	0.5%	96.9%	95.7%	96.0%	96.1%	96.3%
ID	24.1%	25.3%	20.5%	20.5%	5.8	4.3	13.4	9.5	1.0	242,590	254,720	206,202	206,202	2,572	0.4%	97.3%	96.4%	96.5%	96.5%	96.7%
NV	17.3%	21.3%	13.3%	12.0%	4.8	7.3	15.4	6.3	1.2	208,318	256,391	160,244	144,220	2,406	0.4%	97.7%	97.0%	96.9%	96.9%	97.1%
MT	14.5%	20.0%	34.5%	29.1%	7.8	15.6	20.7	8.3	0.8	116,228	159,813	276,041	232,455	2,204	0.4%	98.1%	97.4%	97.2%	97.5%	97.6%
SD	16.7%	21.4%	16.7%	21.4%	2.3	1.8	6	7	0.7	116,001	149,144	116,001	149,144	2,049	0.4%	98.5%	97.7%	97.5%	97.8%	97.9%
ND	15.0%	15.0%	25.0%	15.0%	3.7	3	4.5	11.5	0.6	95,820	95,820	159,700	95,820	1,749	0.3%	98.8%	98.0%	97.7%	98.2%	98.2%
HI	16.4%	58.2%	18.2%	47.3%	6.7	33.9	6.6	15.5	1.1	181,347	644,788	201,496	523,890	1,677	0.3%	99.1%	98.5%	98.8%	98.7%	99.4%
VT	20.6%	17.6%	8.8%	20.6%	7.1	5.5	8.7	10.4	0.6	115,862	99,310	49,655	115,862	1,488	0.3%	99.3%	98.9%	99.0%	98.8%	99.6%
DE	15.7%	41.2%	15.7%	13.7%	6.4	11	11.5	6.9	0.7	104,497	274,305	104,497	91,435	1,379	0.2%	99.6%	99.2%	99.5%	99.0%	99.8%
WY	19.4%	16.1%	48.4%	6.5%	6.3	4.6	8.1	8	0.5	87,791	73,159	219,478	29,264	1,309	0.2%	99.8%	99.4%	99.6%	99.5%	99.9%
AK	34.5%	41.4%	37.9%	6.9%	5.4	7.1	17.4	2	0.6	189,670	227,604	208,637	37,934	1,156	0.2%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure H.7: Cumulative Distribution of Facilities and Participants



Note: The numbers refer to States in the order they appear in the above table. Therefore, 1 is California, 2 is Texas, 3 is New York, etc.

Sources: Information on total MP&M facilities by State is from Census Data; information on where recreating people live is from NDS data.